

The claims defining the invention are as follows:-

1. A method of loss detection to determine containment losses due to seepage and leakage from at least one pool, said method including
5 the steps of maintaining a constant level in said at least one pool, monitoring the nett flow into said at least one pool to maintain said constant level, determining the evaporation losses and calculating the containment losses by subtracting the evaporation losses from the nett flow into said at least one pool.
- 10 2. A method of loss detection to determine containment losses due to seepage and leakage from at least one pool, said method including the steps of measuring the change in volume of said at least one pool, determining the evaporation losses and calculating the containment losses by subtracting the evaporation losses from the change in volume of said at least
15 one pool.
3. The method of claim 1, wherein said at least one pool includes at least first and second flow regulators to allow flow of liquid into and out of said at least one pool respectively, first and second flow sensors co-
20 operating with respective flow regulators and a computational means communicating with said flow regulators and said flow sensors to control operation of said flow regulators, and said computational means determining said containment losses by calculating the measured flow into said at least one pool through said at least first flow regulator and subtracting the measured
25 flow out of said at least one pool through said at least second regulator.
4. The method of any one of claims 1 to 3, wherein the evaporation losses can be determined by the formula:

30
$$E_{vp} = 0.01 \times P_f \times E_{pp} \times SA$$

Where:

E_{vp} = the volume (Megalitres) lost to evaporation from the pool water surface for a period 'p'.

P_f = pan factor (Class A)

E_{pp} = pan evaporation for period 'p' (millimetres)

5 SA = surface area of the pool

5. The method of claim 3, wherein said at least one pool includes at least one liquid metered delivery means which communicates with said computational means and the measured flow therefrom is also subtracted from
10 the nett flow into said at least one pool through said at least first flow regulator.

6. The method of claim 3 or 5, wherein said containment losses are divided into losses from theft, evaporation, seepage and leakage where losses from evaporation, seepage and leakage remain constant to allow the theft loss
15 to be determined by said computational means.

7. A loss detection system to determine and monitor containment losses for open channel networks, said system including at least first and second flow regulators to allow flow of liquid into and out of at least one pool
20 respectively, first and second flow sensors co-operating with respective flow regulators and a computational means communicating with said flow regulators and said flow sensors to control operation of said flow regulators, and said computational means determining said containment losses by calculating the measured flow into said at least one pool through said at least first flow
25 regulator and subtracting the measured flow out of said at least one pool through said at least second regulator.

8. The loss detection system of claim 7, wherein said at least one pool includes at least one liquid metered delivery means which communicates
30 with said computational means and the measured flow therefrom is also subtracted from the measured flow into said at least one pool through said at least first flow regulator.

9. The loss detection system of claim 7 or 8, wherein said containment losses are divided into losses from theft, evaporation, seepage and leakage where losses from evaporation, seepage and leakage remain constant to
5 allow the theft loss to be determined by said computational means.

10. The loss detection system of claim 9, wherein the evaporation losses can be determined by the formula:

10
$$E_{vp} = 0.01 \times P_f \times E_{pp} \times SA$$

Where:

E_{vp} = the volume (Megalitres) lost to evaporation from the pool water surface for a period 'p'.

P_f = pan factor (Class A)

15 E_{pp} = pan evaporation for period 'p' (millimetres)

SA = surface area of the pool

11. A method of loss detection to determine and monitor containment losses for open channel networks, said open channel network
20 including at least first and second flow regulators to allow flow of liquid into and out of at least one pool respectively, first and second flow sensors co-operating with respective flow regulators and a computational means communicating with said flow regulators and said flow sensors to control operation of said flow regulators, said method including the step of
25 determining, using said computational means, said containment losses by calculating the measured flow into said at least one pool through said at least first flow regulator and subtracting the measured flow out of said at least one pool through said at least second regulator.

30 12. The method of claim 11, wherein said at least one pool includes at least one liquid metered delivery means which communicates with said computational means and the measured flow therefrom is also subtracted from

the measured flow into said at least one pool through said at least first flow regulator.

13. The method of claim 11 or 12, wherein said containment losses
5 are divided into losses from theft, evaporation, seepage and leakage where losses from evaporation, seepage and leakage remain constant to allow the theft loss to be determined by said computational means.

14. The method of claim 13, wherein the evaporation losses can be
10 determined by the formula:

$$E_{vp} = 0.01 \times P_f \times E_{pp} \times SA$$

Where:

E_{vp} = the volume (Megalitres) lost to evaporation from the pool water
15 surface for a period 'p'.

P_f = pan factor (Class A)

E_{pp} = pan evaporation for period 'p' (millimetres)

SA = surface area of the pool